

ABSTRACT

Self-expandable, woven intravascular devices for use as stents (both straight and tapered), filters (both temporary and permanent) and occluders for insertion and implantation into a variety of anatomical structures. The devices may be formed from shape memory metals such as nitinol. The devices may also be formed from biodegradable materials. Delivery systems for the devices include two hollow tubes that operate coaxially. A device is secured to the tubes prior to the implantation and delivery of the device by securing one end of the device to the outside of the inner tube and by securing the other end of the device to the outside of the outer tube. The stents may be partially or completely covered by graft materials, but may also be bare. The devices may be formed from a single wire. The devices may be formed by either hand or machine weaving. The devices may be created by bending shape memory wires around tabs projecting from a template, and weaving the ends of the wires to create the body of the device such that the wires cross each other to form a plurality of angles, at least one of the angles being obtuse. The value of the obtuse angle may be increased by axially compressing the body.